

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

PAUL CLIFFORD REID

Serial No. 10/044,721

Filed: January 14, 2002

Priority date: July 14, 1999

Title: FENCE SUPPORT



Group Art Unit 3679

12/Priority Paper
CP
5-23-0

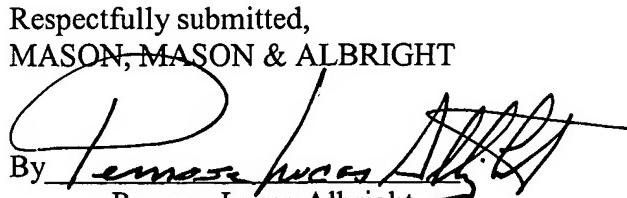
Examiner: John R. Cottingham

SUBMISSION OF PRIORITY DOCUMENTS

To the Honorable Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Enclosed herewith are a certified copy of the PCT International Application (PCT/NZ00/00104) together with a certified copy of the New Zealand priority document (New Zealand Provisional Patent Application No. 336774). Priority of July 14, 1999 is claimed in view of 35 USC 119, 120 and 363.

Respectfully submitted,
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Attached: PCT International Application (PCT/NZ00/104)
New Zealand Provisional Patent Application No. 336774

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GROUP 3600

PATENT COOPERATION TREATY

From the:
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S. R. POPE
BARRISTER AND SOLICITOR OF THE
HIGH COURT OF NEW ZEALAND
HAMILTON

Applicant's or agent's file reference
17446/3X090

PCT
NOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL PRELIMINARY EXAMINATION
REPORT

(PCT Rule 71.1)

Date of mailing
day/month/year

13 FEB 2001

IMPORTANT NOTIFICATION

International Application No.
PCT/NZ00/00104

International Filing Date
20 June 2000

Priority Date
14 July 1999

Applicant
GALLAGHER GROUP LIMITED et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translations to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide

Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized officer SUE THOMAS Telephone No. (02) 6283 2454
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PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 17446/3X090	FOR FURTHER ACTION:	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).	
International Application No. PCT/NZ00/00104	International Filing Date (<i>day/month/year</i>) 20 June 2000	Priority Date (<i>day/month/year</i>) 14 July 1999	
International Patent Classification (IPC) or national classification and IPC Int. Cl. 7 E04H 17/10, 17/12, A01K 3/00			
Applicant GALLAGHER GROUP LIMITED et al			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 18 December 2000	Date of completion of the report 6 February 2001
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer SUE THOMAS Telephone No. (02) 6283 2454

I. Basis of the report	
<p>1. With regard to the elements of the international application:*</p> <p><input checked="" type="checkbox"/> the international application as originally filed.</p> <p><input type="checkbox"/> the description, pages , as originally filed, pages , filed with the demand, pages , received on with the letter of</p> <p><input type="checkbox"/> the claims, pages , as originally filed, pages , as amended (together with any statement) under Article 19, pages , filed with the demand, pages , received on with the letter of</p> <p><input type="checkbox"/> the drawings, pages , as originally filed, pages ; filed with the demand, pages , received on with the letter of</p> <p><input type="checkbox"/> the sequence listing part of the description: pages , as originally filed pages , filed with the demand pages , received on with the letter of</p> <p>2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language which is:</p> <p><input type="checkbox"/> the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). <input type="checkbox"/> the language of publication of the international application (under Rule 48.3(b)). <input type="checkbox"/> the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).</p> <p>3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:</p> <p><input type="checkbox"/> contained in the international application in written form. <input type="checkbox"/> filed together with the international application in computer readable form. <input type="checkbox"/> furnished subsequently to this Authority in written form. <input type="checkbox"/> furnished subsequently to this Authority in computer readable form. <input type="checkbox"/> The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. <input type="checkbox"/> The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished</p> <p>4. <input type="checkbox"/> The amendments have resulted in the cancellation of:</p> <p><input type="checkbox"/> the description, pages <input type="checkbox"/> the claims, Nos. <input type="checkbox"/> the drawings, sheets/fig.</p> <p>5. <input type="checkbox"/> This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**</p>	

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/NZ00/00104

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-17	YES
	Claims	NO
Inventive step (IS)	Claims 1-17	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-17	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)**NOVELTY (N)**

The invention is a sleeve fitted over an upright fence support, the sleeve having at least one web which supports lengths of material used in the fence.

The features of claims 1-17 are not found in any single document published before the earliest priority date of the claims. See, however, the indication contained in Box VI "Certain documents cited."

INVENTIVE STEP (IS)

No single document published before the earliest priority date of the claims, nor any combination of such documents as would be obvious to a person skilled in the art, discloses all of the features of the claims.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/NZ00/00104

VI. Certain documents cited

Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
P,X US 6045099	4 April 2000	7 August 1998	7 August 1998

This document discloses all of the features of claims 1-4, 7, 9-11, 15-17. See whole document.

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
18 January 2001 (18.01.2001)

PCT

(10) International Publication Number
WO 01/04440 A1

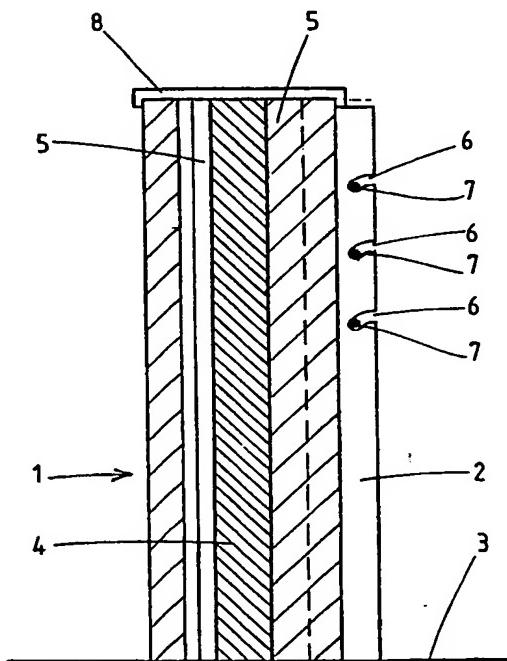
- (51) International Patent Classification⁷: E04H 17/10, 17/12, A01K 3/00
- (21) International Application Number: PCT/NZ00/00104
- (22) International Filing Date: 20 June 2000 (20.06.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
336774 14 July 1999 (14.07.1999) NZ
- (71) Applicant (for all designated States except US): GALLAGHER GROUP LIMITED [NZ/NZ]; Kahikatea Drive, Hamilton 2001 (NZ).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): THOMSON, Bradley, John [NZ/NZ]; 18 Inverness Avenue, Hamilton 2001 (NZ).
- (74) Agents: ALLEN, John, D. et al.; 29 Clarence Street, Private Bag 3140, Hamilton 2001 (NZ).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FENCE SUPPORT



(57) Abstract: A method of construction of a fence support characterised by the step of fitting a sleeve (1) over a support (4) for a fence, the sleeve (1) having at least one web (2) configured to support lengths of material used in the fence.

Certified to be a true copy of the original.

S. R. POPE
BARRISTER AND SOLICITOR OF THE
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MAY 21 2003

GROUP 3600

WO 01/04440 A1

FENCE SUPPORT

TECHNICAL FIELD

This invention relates to an improved fence support.

BACKGROUND ART

- 5 Reference throughout this specification shall be mainly made to use of the present invention for use with electrified fences. However, it should be seen that the present invention can have application to non-electrified fences as well.

Insulators for wires conducting an electrical current are sometimes manufactured separately from the main support wire, and attached to the support as required.

- 10 Security systems employing wall-top fencing are usually installed by attaching insulators to support rods atop the wall.

This process can be labour intensive and time consuming. Further, the insulators and the rods often lack aesthetic appeal.

- 15 The aesthetic quality of the insulators is important as wall-top security fencing is commonly employed in the domestic market. Thus, the main support for the insulator and electric fence needs to be configured for both appearance and its ability to support and insulate the fence wires.

- 20 The process of erecting both posts and insulators can therefore be time consuming and labour intensive as dedicated supports having aesthetic qualities and providing support can be harder to install than basic supports such as reinforcing rods.

It is an object of the present invention to address the foregoing problems or at least to provide the public with a useful choice.

Further aspects and advantages of the present invention will become apparent from the ensuing description which is given by way of example only.

5 **DISCLOSURE OF INVENTION**

According to one aspect of the present invention there is provided a method of construction of a fence support for a fence,

characterised by the step of

- a) fitting a sleeve over an upright support, the sleeve having at least one web
10 being configured to support lengths of material used in the fence.

According to a further aspect of the present invention there is provided a method of adapting a fence support,

characterised by the step of

- fitting a sleeve over the support, the sleeve having at least one web configured to
15 support lengths of material used in the fence.

According to a further aspect of the present invention there is provided a sleeve configured to fit over a support member for a fence, characterised in that the sleeve has at least one web configured to support lengths of material used in the fence.

- 20 Reference to a support may be made with reference to a structure configured to support an electric fence arrangement in a desired manner.

Therefore, in preferred embodiments, the sleeve is made from an insulating material, such as plastics.

For example, the support may be a post, rod, beam, pile, block and so forth.

In preferred embodiments the upright support may be a rod.

- 5 In some embodiments, the rod may be a standard reinforcing rod, such as that commonly used in constructions of reinforced concrete.

References to a rod should not be seen to be limiting as other supports may be used in accordance with the present invention.

The length of material used in the fence shall now be referred to as wire.

- 10 However, wire should be seen as a generic term. For example, the wire may include a length of metal wire, electric fence tape, electric braid, mixed metal conductive lengths, and so forth.

- 15 In some embodiments, the sleeve may surround the support fully. In other embodiments, the sleeve may only partially extend around the support, for example three-quarters or so. An important factor is that the sleeve surrounds the support sufficiently to be retained in position. In some embodiments, the sleeve may be circular and cross section and have a split along its length.

- 20 The sleeve may be formed by a number of ways. However, in preferred embodiments the sleeve is extruded as this is most cost effective for producing a length of material having a substantially continuous cross section.

The relative thicknesses of the sleeve and the web may vary and in preferred embodiments the sleeve is of greater thickness than the web in so as to ensure

sufficient strength in the sleeve while saving on material in the web.

Reference throughout this specification shall now be made to the sleeve as being extruded.

- The sleeve may have internal projections providing a friction fit between the
- 5 sleeve and the rod.

In some embodiments the projections may be deformable.

The advantage of deformable projections may be that the sleeve may fit rods of variable diameter.

- However, reference to projections should not be seen to be limiting. A friction fit
- 10 between the support and the sleeve may equally be achieved between the rod and the internal wall of the sleeve.

The term web is envisaged as being a flange or some other projection out from the main body of the sleeve. In some embodiments the web may be continuous along the length of the sleeve.

- 15 In other embodiments, there may be a number of webs extending out from the sleeve along the length of the sleeve. For example, the sleeve may be made via an extrusion process initially with a continuous web along the length of the sleeve. Subsequently to be extruded, that web may have portions cut therefrom in order that the webs can support the wires of the fence.
- 20 In other embodiments the web may be spaced along the length of the sleeve.

In some embodiments, the web may have slots for retaining the electric fence

wire. The slots may in some embodiments be hook shaped and configured to retain the wire against natural movement of the wire, say by wind.

The number of webs provided may vary according to necessity.

- In some embodiments, there may be two webs, with oppositely angled slots, for
- 5 retaining the electric fence wire.

In other embodiments there may be a single web, although this should not be seen to be limiting.

In some embodiments the sleeve may have detents at set lengths.

This may enable standard size lengths to be cut.

- 10 Therefore if the standard lengths are placed along side each other, the wire holding means will be substantially aligned, providing a uniformly formed electric fence.

In some embodiments, the sleeve may have conductive areas imbedded in the moulding for various purposes.

- 15 In preferred embodiments, the sleeve may be manufactured from a substantially rigid material.

For example, this may include plastic, metal, Kevlar, ceramics, glass and so forth.

Preferably, the rigidity of the material may be such that it may withstand blows from a hammer to place the sleeve over the rod.

- 20 At least part of the sleeve may be manufactured for an electrically insulating

material, such that the web or the wire supports are insulated.

- The sleeve may also include a cap configured to attach to the top of the sleeve. Alternatively there may be supplied a cap that fits onto the rod held within the sleeve.
- 5 In preferred embodiments, the cap may be configured to positively lock the sleeve to the support.

One advantage of the cap may be to reduce the ability of intruders to remove the sleeve from the support and breaching the electric fence.

- The cap may have fingers that insert into the sleeve and lock it into position on
10 the support.

The cap may preferably be waterproof.

- This has an advantage that mild steel or other cheaper materials with less resistance to corrosion may be used in the support because the cap will prevent or greatly minimise the amount of moisture that will come in contact with the
15 support, and therefore reducing the risk of moisture corrosion.

The cap also improves the aesthetic appeal of the sleeve.

A further advantage of having the cap is in the actual physical construction of the fence.

- Fences made in accordance with the present invention are envisaged to be fairly
20 rugged. Thus, it is envisaged that in constructing the fence, the sleeve and cap are placed over the rod and then hammered into position quite vigorously. The

hammering may be sufficient to force the cap to be secured in place with respect to the sleeve and the rod, thus not requiring any other means of fixing the cap such as adhesives and the like.

The present invention may have provision for advertising and promotional
5 printing space on the sleeve. This may be included on the web.

In some embodiments of the present invention, the fence may be constructed as previously described, but then the rods subsequently removed from the sleeves to provide a less expensive fence, even if less secure. For example, the present invention could be used to construct a pet enclosure or to exclude predators by
10 hammering the sleeve and rod into the ground and then subsequently removing the rod once the sleeve is secured.

The present invention provides a number of potential advantages.

The present invention provides a simple, cost effective and less time consuming method and apparatus for providing an electric fence wire support, with improved
15 aesthetic appeal.

Whereas previously, dedicated supports were required to be erected with insulators attached in a separate process, the present invention allows simple cheap main supports to be used for the electric fence support, without compromising aesthetic appeal, with the easily installed sleeve fitting over the
20 support having an integrally formed provision for an insulated wire support.

BRIEF DESCRIPTION OF DRAWINGS

Further aspects of the present invention will become apparent from the following

description which is given by way of example only and with reference to the accompanying drawings in which:

- Figure 1 shows a cross sectional view of one embodiment of the present invention, and
- 5 Figure 2 shows a side-on cross sectional view of a preferred embodiment of the present invention attached to a support.
- Figure 3 shows a further embodiment, having two webs.

BEST MODES FOR CARRYING OUT THE INVENTION

According to Figure 1 there is shown a plan view of one embodiment of the
10 present invention.

The sleeve (1) is substantially cylindrical, but includes a web (2) formed on the exterior of the cylindrical section. The sleeve (1) is mounted atop a wall (3), and has been slid over a rod (4) which is in turn embedded or otherwise fixably attached to the walltop (3).

15 It is envisaged that the sleeve (1) may be hammered or forced over the rod (4), to provide a tight friction fit.

In order to allow for variable rod diameters, projections (5) are formed on the inside of the sleeve projecting towards the centre. These projections (5) may be deformable to a degree, to provide a tight friction fit between the projections and
20 the rod (4) whilst the deformability allows for variations in rod diameter.

The web (2) includes incisions, indicated by arrow 6 along the length of the web.

the incisions configured to receive electric fence wire length (7).

The sleeve (1) is preferably manufactured from an insulating material such as plastic. However, the sleeve will meet the objects of the present invention as long as the web or the web/wire (7) contact point/incisions (6) is electrically insulated.

- 5 The sleeve (1) may be manufactured from other insulating materials such as glass, wood, Kevlar and so forth.

With reference to Figure 2, there is shown a side-on cross-sectional view of the sleeve shown in Figure 1. The rod (4) is fixably attached to a wall (3). The sleeve (1) can be seen to be slid over the rod (4), the friction fit being provided
10 between the rod (4) and projections (5) on the interior of the sleeve (1).

Incisions (6) are better shown in the web (2) and retain electric fence wire (7), which is shown passing through the page.

Also provided is a cap (8) which may seal the open top of the sleeve (1).

The cap (8) may also have projecting fingers, that are configured to positively
15 lock the cap (8), rod (4) and sleeve (1) together. This reduces the ability of a potential intruder to remove the sleeve (1) from the rod (4), thereby breaching the security provided by the electric fence wires (7).

The cap (8) also improves aesthetic appeal. The cap (8) also prevents or greatly minimises the amount of water or moisture accumulation within the sleeve (1).
20 potentially preventing or greatly reducing the corrosive effects of moisture on the rod (4).

Therefore, cheaper materials may be used in the manufacture of rod (4), reducing

the overall cost of providing the electric fence support.

It can be seen from the plan view of Figure 1 that the substantially cross-sectional uniform shape of the sleeve (1) will enable the sleeve to be manufactured by extrusions.

- 5 With reference to Figure 3 there is shown a plan view with a further embodiment of the present invention. The numbered features on Figure 3 are the same as for Figures 1 and 2, except that the web (2) is replaced with two webs (9) and (10). The webs (9) and (10) work in concert with each other to retain the electric wire (7). The webs (9) and (10) include slots (11) and (12), respectively, which may
- 10 be cut at opposing angles to work in concert to retain the electric wire (7) in position on the sleeve (1).

Aspects of the present invention have been described by way of example only and it should be appreciated that modifications and additions may be made thereto without departing from the scope of the appended claims.

THE CLAIMS DEFINING THE INVENTION ARE:

1. A method of construction of a fence support for a fence,
characterised by the step of
 - a) fitting a sleeve over an upright support for a fence, the sleeve having at least one web configured to support lengths of material used in the fence.
2. A method as claimed in claim 1 wherein the fence is an electric fence.
3. A method as claimed in either claim 1 or claim 2 wherein the sleeve is made from an at least partially made from insulating material.
4. A method as claimed in any one of claims 1 to 3 wherein the upright support is a rod.
5. A method as claimed in any one of claims 1 to 4 wherein the sleeve has internal projections providing a friction fit between the sleeve and the support.
6. A method as claimed in claim 5 wherein the projections are deformable.
7. A method as claimed in any one of claims 1 to 6 wherein the sleeve is extruded or moulded.
8. A method as claimed in any one of claims 1 to 7 characterised by the further step of
attaching a cap to the top of sleeve/support combination.

9. A method of adapting a fence support characterised by applying the method as claimed in any one of claims 1 to 8.
10. A sleeve configured to fit over a support member for a fence characterised in that
the sleeve has at least one web configured to support lengths of material used in the fence.
11. A sleeve as claimed in claim 10 which is extruded or moulded.
12. A sleeve as claimed in either claim 10 or claim 11 which has internal projections providing a friction fit between the sleeve and the support.
13. A sleeve as claimed in claim 12 wherein the projections are deformable.
14. A sleeve adapted to receive a cap that fits over the sleeve and the support.
15. A method of construction of a fence support for a fence substantially as herein described with reference to and as illustrated by the accompanying drawings.
16. A method of adapting a fence support substantially as herein described with reference to and as illustrated by the accompanying drawings.
17. A sleeve substantially as herein described with reference to and as illustrated by the accompanying drawings.

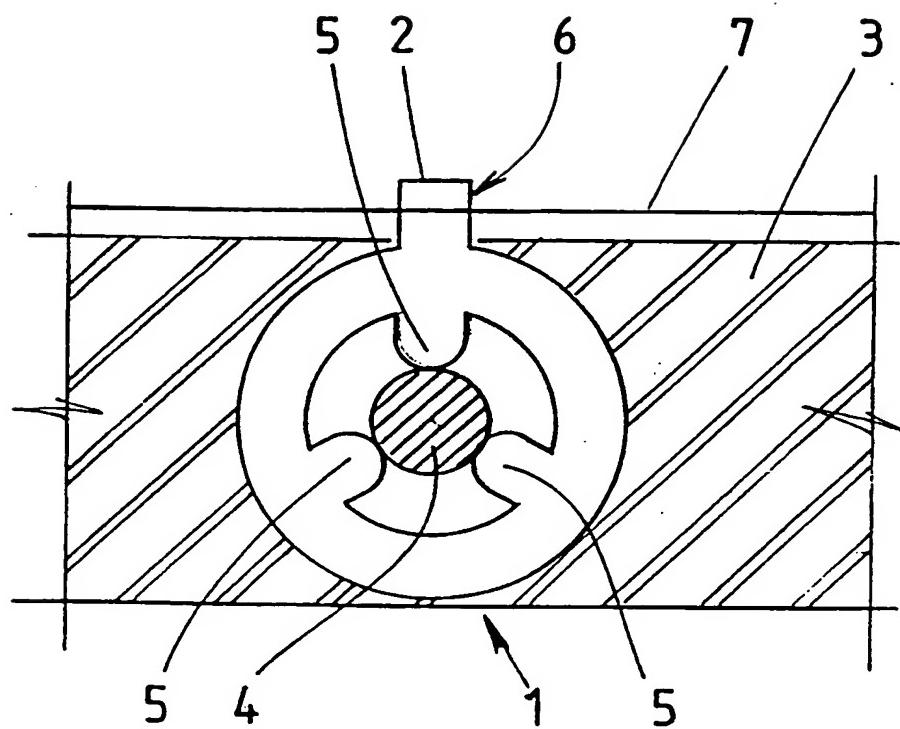


FIG. 1.

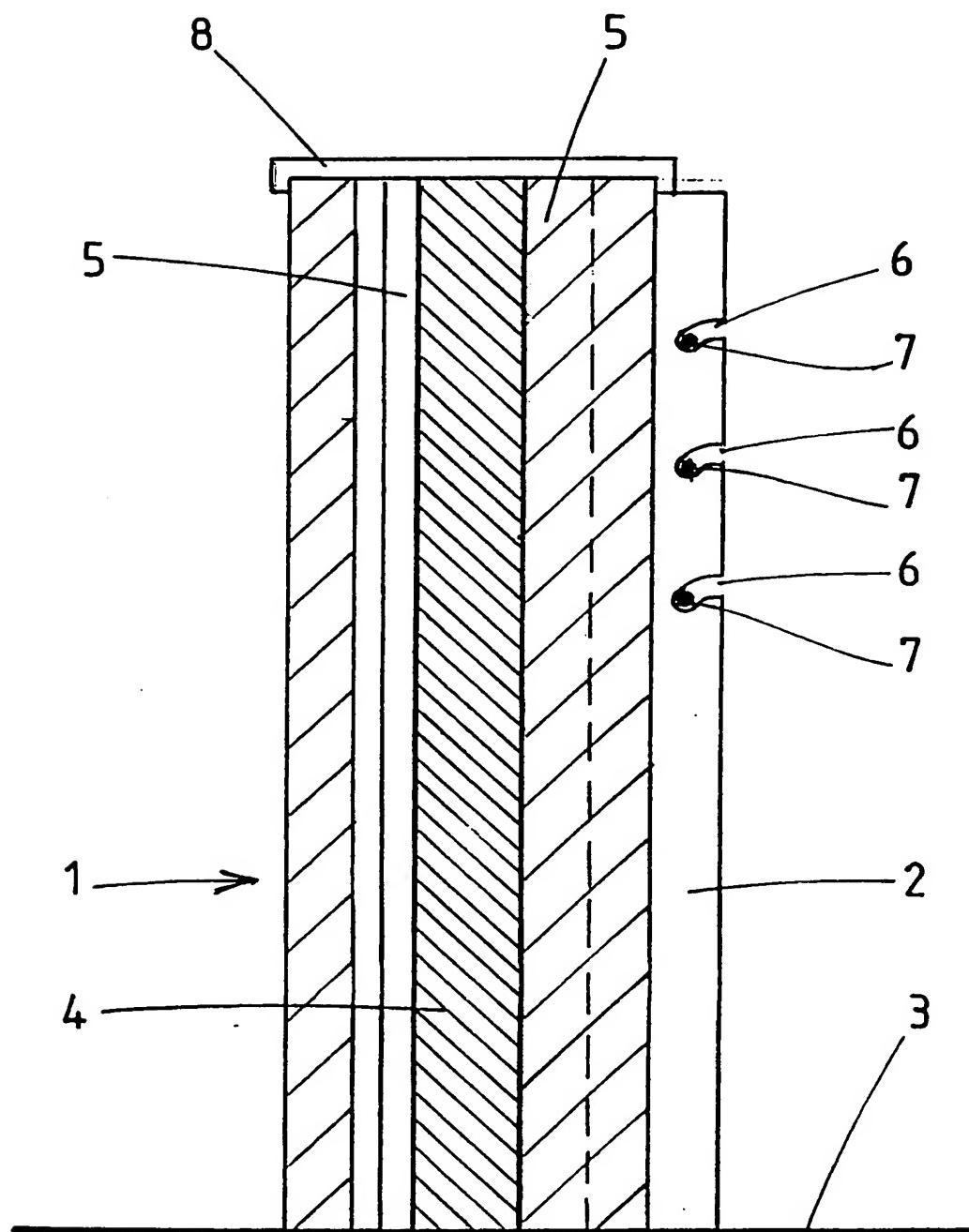


FIG . 2.

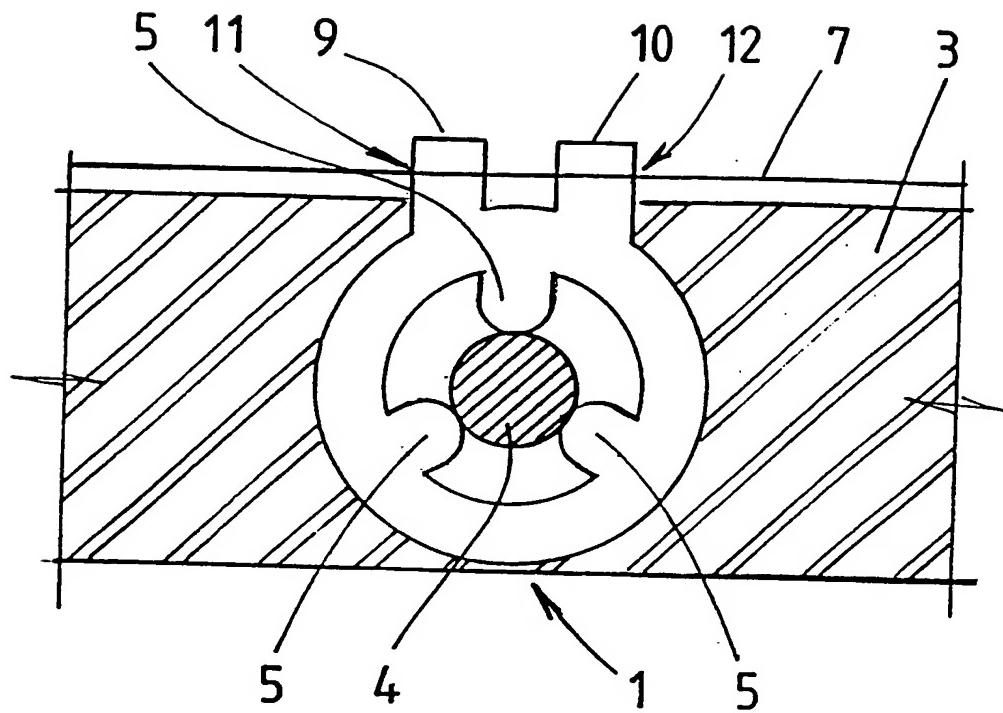


FIG. 3.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ00/00104

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. : E04H 17/10, E04H 17/12, A01K 3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Derwent: electric, fenc-, sleeve, cover, cap etc

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	US 6045099 A (Aiken) 4 April 2000 Whole document	1-4, 7, 9-11, 15-17
A	US 4680428 A (Wilson, Jr) 14 July 1987 Whole document	
A	US 4520231 A (Hubbell) 28 May, 1985 Whole document	

Further documents are listed in the continuation of Box C See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

4 September 2000

Date of mailing of the international search report

- 7 SEP 2000

Name and mailing address of the ISA/AU

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Authorized officer

SUE THOMAS
Telephone No : (02) 6283 2454

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/NZ00/00104

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report	Patent Family Member
US 6045099	NIL

END OF ANNEX